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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,102	10/01/2001	Boris A. Maslov	57357-016	4783

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EXAMINER
LE, DANG D

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 12/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/966,102	MASLOV ET AL.	
	Examiner	Art Unit	
	Dang D Le	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-18 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 01 October 2001 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "the width of the current pulses and the selection of the switches" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 16, it is not clear what type of flux does not traverses within the volume because if a controller is contained within the volume, the controller will generate electromagnetic field. As a result, there exists flux within the volume.

In addition, there is insufficient antecedent basis for the following limitations in the claims. Claim 9 recites the limitations "the width of the current pulses" and "the rotor position sensor" in lines 1 and 3.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 16 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Hsu (U.S. Pat. No. 6,380,648).

Regarding claim 16, Hsu shows a rotary electric motor comprising:

- A rotor (611) having a plurality of permanent magnets (615) disposed in an annular ring configuration, the magnets alternating in magnetic polarity along an inner annular surface;
- A stator (Figures 6A-6B) of annular ring construction encompassed within the rotor and separated therefrom by a radial air gap, the stator comprising a plurality of ferromagnetic core segments (212) having respective coils (413, 414) wound thereon to form stator windings, the stator having an outer radial periphery at the air gap and an inner radial periphery defining a volume within which substantially no flux traverses (ring 211 being made of the same material of teeth 212); and
- A controller (511) contained within the volume for applying energization current to the stator windings.

Regarding claim 17, it is noted that Hsu also shows said volume being substantially cylindrical.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 2, 8, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (U.S. Pat. No. 6,380,648) in view of Artus et al.

Regarding claim 1, Hsu shows a rotary electric motor comprising

- A rotor (611) having a plurality of permanent magnets (615) disposed in an annular ring configuration, the magnets alternating in magnetic polarity along an inner annular surface;

- A stator (Figure 6A) of annular ring construction encompassed within the rotor and separated therefrom by a radial air gap, the stator comprising:
- A plurality of ferromagnetic core segments isolated (Figure 6B) from each other, each of the core segments having respective coils wound thereon to form stator windings;
- An outer radial periphery at the air gap (Figure 2); and
- An inner radial periphery defining a volume within which substantially no flux traverses; and
- A controller (511) contained within the volume for applying energization current to the stator windings.

Artus et al. show a plurality of ferromagnetic core segments ferromagnetically isolated from each other (Figure 1) for the purpose of reducing flux loss

Since Hsu and Artus et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the plurality of ferromagnetic core segments ferromagnetically isolate from each other as taught by Artus et al. for the purpose discussed above.

Regarding claim 2, it is noted that Hsu also shows said motor being a brushless motor and wherein said volume further comprises electronic switches (51) responsive to the controller for directing current from a power supply to the stator windings.

Regarding claim 8, it is noted that Hsu also shows the electronic switches connected in bridge configurations, connected respectively to corresponding stator segment windings.

Regarding claim 13, it is noted that Hsu also shows said volume further comprising a circuit board (511) having mounted thereon the controller and switches.

Regarding claim 15, it is noted that Hsu also shows said volume being substantially cylindrical.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (U.S. Pat. No. 6,380,648) in view of Artus et al. as applied to claim 2 above, and further in view of Isaak et al.

Regarding claim 3, the motor of Hsu modified by Artus et al. includes all of the limitations of the claimed invention except for said volume further comprising a power supply.

Isaak et al. show the volume further comprising a power supply (4) for the purpose of reducing size.

Since Hsu, Artus et al. and Isaak et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include a power supply in the volume as taught by Isaak et al. for the purpose discussed above.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (U.S. Pat. No. 6,380,648) in view of Artus et al. and Isaak et al. as applied to claims 3 above, and further in view of Erdman et al.

Regarding claim 4, the motor of Hsu modified by Artus et al. and Isaak et al. includes all of the limitations of the claimed invention except for the stator further comprising a rotor position sensor having an output connected to the controller

Erdman et al. show the stator further comprising a rotor position sensor (200) having an output connected to the controller for the purpose of controlling the motor operation.

Since Hsu, Artus et al., Isaak et al. and Erdman et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include in the stator a rotor position sensor having an output connected to the controller as taught by Erdman et al. for the purpose discussed above.

11. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (U.S. Pat. No. 6,380,648) in view of Artus et al. as applied to claim 2 above, and further in view of Eakman et al.

Regarding claim 5, the motor of Hsu modified by Artus et al. includes all of the limitations of the claimed invention except for each stator segment comprising a pair of poles circumferentially spaced from each other at the outer periphery and joined

together by a yoke or linking portion at the inner periphery, the pair of poles having opposite magnetic polarities at the air gap when energization current is supplied to the segment winding.

Eakman et al. show each stator segment comprising a pair of poles (24A, 24B) circumferentially spaced from each other and joined together by a yoke or linking portion (25), the pair of poles having opposite magnetic polarities at the air gap when energization current is supplied to the segment winding (26) for the purpose of reducing weight.

Since Hsu, Artus et al. and Eakman et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make each stator segment with a pair of poles circumferentially spaced from each other at the outer periphery and joined together by a yoke or linking portion at the inner periphery, the pair of poles having opposite magnetic polarities at the air gap when energization current is supplied to the segment winding as taught by Eakman et al. for the purpose discussed above.

Regarding claim 6, it is noted that Eakman et al. also show the winding of each stator segment comprising a winding portion on each stator pole, the winding portions of each pole pair being wound in opposite directions and connected in series.

Regarding claim 7, it is noted that Eakman et al. also show the winding of each stator segment being formed on the yoke or linking portion.

12. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (U.S. Pat. No. 6,380,648) in view of Artus et al. and Isaak et al. as applied to claim 3 above, and further in view of Fatula, Jr. et al.

Regarding claim 10, the motor of Hsu modified by Artus et al. and Isaak et al. includes all of the limitations of the claimed invention except for said power supply comprising a plurality of replaceable batteries.

Fatula, Jr. et al. show said power supply comprising a plurality of replaceable batteries for the purpose of improving efficiency.

Since Hsu, Artus et al., Isaak et al. and Fatula, Jr. et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the power supply with a plurality of replaceable batteries as taught by Fatula, Jr. et al. for the purpose discussed above.

Regarding claim 11, it is noted that Fatula Jr. et al. also show said batteries rechargeable batteries capable of being recharged from an external source when removed from the stator and of being recharged by regenerative current applied by the stator segment windings.

Regarding claim 12, it is noted that Fatula Jr. et al. also show said batteries being rechargeable from an external source.

13. Claims 14 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (U.S. Pat. No. 6,380,648) in view of Artus et al. as respectively applied to claims 13 and 8 above, and further in view of Erdman et al.

Regarding claim 14, the motor of Hsu modified by Artus et al. includes all of the limitations of the claimed invention except for said controller comprising an application specific integrated circuit (ASIC).

Erdman et al. show said controller comprising an application specific integrated circuit (ASIC, 200) for the purpose of improving efficiency.

Since Hsu, Artus et al. and Erdman et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make said controller with an application specific integrated circuit (ASIC) as taught by Erdman et al. for the purpose discussed above.

Regarding claim 9, it is noted that Erdman et al. also show the width of the current pulses and the selection of the switches being controlled by the controller in response to signals received from the rotor position sensor.

14. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (U.S. Pat. No. 6,380,648) in view of Isaak et al.

Regarding claim 18, Hsu shows all of the limitations of the claimed invention including said motor being a brushless motor and electronic switches responsive to the

controller for directing current excitation from the power supply to the stator windings except for said volume further comprising a power supply.

Isaak et al. show the volume further comprising a power supply (4) for the purpose of reducing size.

Since Hsu and Isaak et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include a power supply in the volume as taught by Isaak et al. for the purpose discussed above.

Information on How to Contact USPTO

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D Le whose telephone number is (703) 305-0156. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

DDL
December 9, 2002

DL